Attachment 1

Specifications

Solicitation No.: DTFAEN-12-R-00042

Closure Fence Project
at the
Saint Petersburg-Clearwater Airport, Air Traffic Control Tower
Clearwater, Florida

St Petersburg Clearwater Airport Air Traffic Control Tower

Clearwater, Florida

Closure Fence Project

SPECIFICATIONS

December 2011

SPEC. # FAA-PIE-1001077

Prepared by: Federal Aviation Administration
ATO Tech Ops Engineering Services
Atlanta Enroute Unit

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DIVISION 16 – ELECTRICAL (NOT USED)

END OF DOCUMENT 0002

SECTION 01000 GENERAL REQUIREMENTS

PART 1 – GENERAL

1.1 SCOPE

Scope - These specifications, together with referenced specifications, standards, construction drawings specified on the Contract Documents and the conditions of the Construction Contract cover the requirements of the Federal Aviation Administration (FAA) for the work associated with this project.

1.2 REPAIR AND PROTECTION

A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes.

B. Protect construction exposed by or for quality control service activities, and protect repaired construction.

C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

1.3 SEVERE WEATHER PREPAREDNESS PLAN

The contractor shall submit a Severe Weather Preparedness Plan that includes hurricanes and tropical storms. It should include items such as:

A. 48 hrs prior to a severe windstorm such as a tropical storm or hurricane the contractor shall begin to secure the site and protect the facility as it relates to the construction area from the elements. The site shall be cleaned and all items that may become airborne shall be secured, tied down or stored properly.

B. 24 hrs prior to a severe windstorm the contractor shall be prepared to evacuate the site for personnel safety.

C. The contractor shall be prepared to commence work within 24 hrs following a severe windstorm.

D. The Government would consider extending the contract based on the number of days the contractor is impacted by a severe windstorm. However, no additional compensation will be considered.

1.4 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with the standards in effect as of the date of the Contract Documents.

C. Conflicting Requirements: Where compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different but apparently equal to the COR for a decision before proceeding.

1. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of the requirements. Refer uncertainties to the COR for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on the Project must be familiar with industry standards applicable to its construction activity. Copies of applicable industry standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, the Contractor shall obtain copies directly from the publication source and make them available on request.

E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where abbreviations and acronyms are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards-generating organization, authorities having jurisdiction, or other entity applicable to the context of the text provision. Refer to Gale Research's "Encyclopedia of Associations" or Columbia Books' "National Trade & Professional Associations of the U.S.," which are available in most libraries.

1.5 RECORD DRAWINGS

The Government shall provide the Contractor with an electronic copy of the record drawings in .PDF format. Changes to the original plans, drawings or shop drawings shall be annotated in red.

END OF SECTION 01000

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SECTION 01010 SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

A. Scope of Work - These specifications, together with the referenced specifications, standards, and drawings specified in the contract documents cover the requirements for the following work:

1. Demolition Work:
   - Removal of approximately 758 feet of an existing chain link fence including manual and automated gates.
   - Removal of four (4) grown tress and the trimming of a grown one.
   - Removal of an electrical Post.
   - Removal of a 31' x 106'asphalt section. Re-condition the area with fill material to make it even with the existing driveway.
2. New Work
   - Installation of approximately 378 feet of a new 8 feet chain link fence.
   - Installation of 23 concrete bollards.
   - Construction of a 4' x 25' x 4" concrete side walk.

The work is at the ST. Petersburg-Clearwater Airport (PIE) Air Traffic Control Tower located in Clearwater, Florida.

The General Contractor (GC) shall normally be expected to work during day times, 0700 AM to 0430 PM. Extensive coordination between the GC and FAA personnel shall be required at all times in order to maintain an operational facility.

Prospective bidders are strongly recommended to perform a site visit to assess the actual conditions before submitting a bid. Site visits should be arranged thru the Contracting Officer's Office.

B. FAA Holiday Moratorium - No work shall be scheduled or take place during the week of and the weekend preceding and following: The Thanksgiving, Christmas, and New Years Holidays. Only emergency work to restore critical services to the Facility will be considered and a moratorium waiver must be submitted and approved. The moratorium period will not be counted against the contract construction duration of the project.

C. Intent of Specifications - This specification identifies all material, labor, and equipment required to perform this work. All work performed and all materials and equipment used are subject to approval by the Contracting Officer (CO) and /or the Resident Engineer (RE). This shall include but is not limited to inspection, scheduling, reporting and submittals.

D. Title - Titles to division and sections of the specifications and notes and titles on drawings referring to subcontractors, division of work by trade, or type of work, are introduced merely for convenience in reading the specifications and drawings and do not imply any separate contractual arrangements of work assignments. Such separations into titled divisions and sections shall not operate to make the

Government an arbiter to establish subcontract limits between the contractor and subcontractors, or between the subcontractors themselves.

E. Contract Documents - The drawings, as shown on the "List of Drawings" in Attachment 2 in each specification package, General, Architectural, Mechanical, Electrical, and Southern Standards, all form a part of the construction requirements for this project. The renovation of these systems shall be in accordance with the lines and grades shown on the drawings. The Contractor shall not use dimensions scaled from drawings. All dimensions shown on the drawings shall be field verified by the contractor prior to any modifications and fabrications. Any discrepancies between the drawings and specifications and the existing conditions shall be referred to the CO for adjustment before any work affected is performed.

F. Precedence of Contract Documents - In the event of a difference between the following contract provisions, the order of precedence to determine which provision shall govern is:

1. Contract Clauses and Provisions
2. Project Specifications
3. Project Drawings

Any discrepancies between the contract provisions, the specifications and the contract drawings shall be referred to the CO for a written determination in accordance with Contract Clause entitled Order of Precedence.

G. Contracting Officer -The term "Contracting Officer" (CO) as used herein denotes the person designated to act on behalf of the Government in the performance of this contract. Where reference is made to "Federal Aviation Administration" (FAA), "Resident Engineer" (RE), "Contracting Officer's Representative" (COR), or the like, this shall mean the Contracting Officer or his/her authorized representative.

H. Contractor Superintendence - In accordance with Contract Clause entitled SUPERINTENDENCE BY THE CONTRACTOR, the Contractor shall at all times during performance of this contract and until the work is completed and accepted, directly superintend the work or assign and have on site a competent superintendent with the authority to act for the Contractor.

The Contractor shall submit a Project Organizational Chart with the key personnel identified and their qualifications for the Government's review and approval.

1.2 SPECIAL REQUIREMENTS

A. Asbestos Containing Materials. - **No new materials supplied by the contractor for this construction shall contain asbestos or lead-based products.** The contractor shall verify that all materials, including those supplied by third parties, are asbestos free and/or lead-based free materials.

1. Contractor certification requirements. - The contractor shall provide to the Contracting Officer (CO) a signed and notarized document stating that to the best of his/her knowledge, no asbestos containing or lead-based materials were used during the construction, renovation, and/or modernization of this facility.

2. Material Safety Data Sheets. - The contractor shall submit Material Safety Data Sheets (MSDS) with all submittals for review and approval by the Contracting Officer. New materials found to contain asbestos and/or lead-based products will be automatically

disapproved. Copies of all MSDS sheets shall be provided to the facility FAA personnel for the building records. The contractor shall comply with all health and safety provisions outlined in each MSDS and shall follow all OSHA guidelines regarding personnel protection.

3. Hazardous materials.- If the FAA RE suspects the presence of asbestos or lead-based products in the new materials, the FAA will sample the suspect material to verify that no asbestos containing material or lead-based material were used. If these materials are found to contain asbestos or lead-based products, the cost of the survey and all subsequent removal/replacement of any hazardous materials shall be at the contractors' expense.

B. Work plan and scheduling. – Prior to the Contracting Officer issuing the Notice to Proceed (NTP), the contractor shall submit for approval a plan and schedule of his work. This schedule shall include all of the requirements as defined in Section 01042 of this specification.

C. Sequence of work. - The contractor shall be responsible for scheduling all aspects of the work and coordinating among the different trades involved in the project. The contractor shall follow the guidelines outlined in the sequence of work as described in the contract drawings. The Federal Aviation Administration has developed a list of milestones that the contractor shall be required to meet.

D. Construction Activities and Milestones. – Construction Activities and Milestones below shall be included in the submitted schedule. They are provided for guidance, but are not intended to direct how and when contract activities shall be ordered or take place in the submitted schedule.

1. SUBMITTAL APPROVAL
2. NOTICE TO PROCEED
   a. Scheduled by the FAA's CO
3. COMPLETE DEMOLITION

E. Driveway Closures - Contractor shall maintain access to the loading dock at all times.

END OF SECTION 01010

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SECTION 01030 SITE ACCESS, CONSTRUCTION LIMITS, USE OF FACILITIES AND WORK HOURS

PART 1 – GENERAL

1.1 SUMMARY

A. Existing facility operations. - Construction/demolition shall in no way interfere with Air Traffic Control Operations. The ATCT is a 24 hour, seven day a week facility. Extreme care shall be exercised so as not to cause any interference or interruption of service from this facility. Controller functions are vital to the safety of the flying public. It is absolutely mandatory that the contractor protects FAA personnel and existing FAA communication, electrical and mechanical equipment both inside and outside buildings from damage caused by impact, water, debris, dust or odor. The contractor shall have the overall responsibility for the performance and enforcement of all forms of protection within the ATCT premises against any damages due to work performed under this contract. Any damages incurred, as a result of construction activity during the performance of this contract will be repaired/replaced immediately by the contractor at no cost to the FAA.

Any work or activity that may impact the National Airspace System (NAS), such as work on critical equipment or circuits, will require coordination with the Contractor Office Representative (COR). The COR will prepare and submit a work or activity specific "Risk Assessment" for the facility's review and approval. This process may take one week to complete. Typically, this type of work or activity is performed from midnight to 05:00 Am and/or on weekends. Additionally excessively noisy activities, those which might adversely impact Air Traffic operations, shall be performed between the hours of midnight to 05:00 A.M.

B. Construction limits and access. -

1. Construction limits.- The contractor shall confine operations, activities, storage of materials and employee parking within the designated areas, as indicated on the construction staging plan, or as designated by the COR. Additional space the contractor deems necessary shall be obtained off site, at no additional cost to the Government.

2. Access. - Access route for the contractor, subcontractors, employees, deliveries, etc., shall be as designated by the COR. Access to all, parking areas, and loading dock shall be kept unobstructed. If temporary access obstruction is unavoidable, the contractor shall advise the COR immediately. Vehicles transporting materials shall not be loaded beyond the capacity prescribed by federal, state, or local laws. Obstruction of existing roadways, driveways, to the ATCT is strictly prohibited.

3. Damage to site. - Damage to existing paving, lawns, curbs, sidewalks, and utilities caused by the contractor's activities shall be repaired immediately. Any damage to the building, interior or exterior, that are a result of the contractor's activities shall be repaired. All costs of repairs shall be paid by the contractor. After notice to proceed and prior to the commencement of construction, the contractor and COR shall conduct joint inspections of the existing areas affected by the construction. Existing damage or defects shall be noted and will be used as the basis for determination of damages caused by the contractor's operations.

C. Inspection of site by contractor. - It is strongly urged that the contractor carefully examine the premises to determine the extent of work and the conditions under which it must be done.

D. Government use and access to premises. - The Government reserves the right to enter the construction area at any time for work inspection and for the operation of the facility.

E. Work hours. - All work hours, shifts, and overtime work shall be coordinated with the COR. Before commencing construction, furnish to the COR a statement of hours per day and days per week to normally be worked and approximate number of persons on the job for a normal work shift.

F. Security requirements.

1. Personnel List. - Contractor shall provide the COR with a list of contractor personnel who require access to the ARTCC. The list shall be submitted immediately after contract award. The list shall be kept current during the project and shall include the following:

    Full name, including middle initial
    Federal or State issued photo ID
    Date of Birth
    Place of Birth

2. Security Investigation and identification. - Contractor's personnel may be subject to security investigation by FAA. The contractor shall promptly complete all security forms provided by the CO. Contractor's personnel shall report to the FAA security guard at entrance to the facility and submit proper identification when signing in to obtain an FAA badge which will be worn on an outside garment, above the waist and below the neck, facing forwards, at all times while on the ARTCC premises. This badge shall be returned daily to the security guard when leaving the premises, unless otherwise noted.

3. Vehicle identification. - Vehicle identification tags will be issued for contractor's and contractor's employees' vehicles that require access into the ATCT site. The identification tags shall be displayed in the windshield of the vehicle at all times when the vehicle is on the site. The contractor shall be responsible for the collection and return of all vehicle tags which are no longer required.

4. Escort requirement. - Contractor is responsible to provide a badged escort for his employees. This will required a security background investigation by the FAA. Contractor's personnel shall not violate any security regulations pertaining to the ATCT facility. Violators may be removed from the premises with the right to reenter revocable. Contractor's day-to-day work schedules in the classified areas shall be so arranged to allow for minimum escort.

5. Right to search. - Current procedures at FAA facilities include the "right to search." If in the judgment of the FAA a cause to search a vehicle or the person of personnel exists, such search will be made.

6. Replacement of lost identification. - The FAA will provide personnel badges and vehicle identification tags as described above. It is the contractor's responsibility to return these badges and tags daily and upon completion of the project. The contractor shall be liable to pay for any FAA badge or tag not returned or replaced at the completion of the work. The payment for lost I.D. will be $10.00 for each and every tag or badge not returned or replaced, excluding temporary badges.

7. Physical Security. - At the end of each work day, the contractor shall secure all construction areas by closing and locking all doors and gates. The contractor is responsible for the security of the staging area, and shall provide the required measures at no additional expense to the government.

END OF SECTION 01030

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SECTION 01040 COORDINATION LOCAL PERMITS AND TESTING

PART 1 – GENERAL

1.1 SUMMARY

A. Project coordination. - It shall be the duty of the Contractor to prepare a detailed schedule of work and work layout to resolve conflicts and to assure coordination of the work by different trades.

B. Weekly Meeting. - Coordination between the COR and Contractor shall take place weekly at the site. Special meetings will be scheduled if requested by either the COR or Contractor. The subjects to be discussed at the progress meetings shall included, but are not limited to, the following:

-Safety concerns/Issues
-Progress of Work
-Previous meeting action items/issues
-Field problems
-Material and Equipment delivery status
-Submittal status/schedules
-Progress planned during the upcoming week(s)
-Review of changes, and potential effects on the schedule
-Construction schedule revisions
-Schedule Revisions
-Other current business

The following persons will be expected to attend meetings; FAA COR, Prime Contractor Superintendent, Project Manager and Project Manager/Superintendents for other major trades.

C. Facility Coordination Meeting. - Weekly coordination meeting shall take place between the facility managers, COR and the Contractor's Project Superintendent.

D. Work Affecting Operational Systems. - The contractor shall coordinate all work which has any or may have any impact on any operational system within the facility through the COR. The contractor shall immediately cease any work which is adversely impacting the operation of the ARTCC and shall immediately repair or restore any portion of the operational system that has been damaged or suffered diminished performance as a result of the contractor's activities.

E. Local permits and Coordination. - The Contractor will be responsible for obtaining and payment of all building fees, inspection fees, utility connection charges and any other fees or charges which may be incurred in the performance of this contract.

F. Applicable documents. - The contractor shall comply with all local city, county, and state construction codes.

1.2 TESTING

A. Contractor's responsibility.- Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide certified testing and inspection agencies, inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction.

1. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Contractor's responsibility, the Contractor shall employ and pay a qualified independent testing agency to perform quality-control services.
2. Where individual Sections specifically indicate that certain inspections, tests, and other quality-control services are the Government's responsibility, the Government will employ and pay a qualified independent testing agency to perform those services.

    a. Where the Government has engaged a testing agency for testing and inspecting part of the Work, and the Contractor is also required to engage an entity for the same or related element, the Contractor shall not employ the entity engaged by the Government, unless agreed to in writing by the Government.

B. Retesting - The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.

    1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Document requirements.

C. Selection and payment. - The contractor shall pay for all testing. The contractor shall select and use a certified and qualified testing laboratory to perform the requirements of this contract. The testing laboratory shall be certified by the American Association of Laboratory Accreditation.

D. Rejected materials or workmanship.- All materials or workmanship or both which have been rejected by the COR by reasons of failure to conform to the requirements of the Contract Documents shall be removed and replaced with new, acceptable materials by the contractor at the contractor's own expense. Contractor shall also pay for testing of new materials which have been installed in place of rejected materials.

    1. The testing laboratory will furnish three copies of each report directly to the COR covering all of its determinations and conclusions. Reports will show all data customarily listed by the laboratory in reporting on quantities, qualities, and types of materials, together with their correlation with the project and applicable Specification Section.

END OF SECTION 01040

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SECTION 01042 CONSTRUCTION SCHEDULES

PART 1 – GENERAL

1.1 SUMMARY

A. Description. - The work plan and schedule prepared by the contractor shall consist of a Gantt and Pert chart(s) and logical narrative plan. The charts shall show all significant activities and shall include detailed activities when critical work is to be performed. The schedule shall include the sequence shown in Section 01010 1.2. D

1.2 PRODUCTS

A. Diagrams -

1. Show the order of the activities.
2. Include construction activities, the submittal and approval of materials, samples and shop drawings, the procurement of critical materials and equipment, fabrication of special materials and equipment along with their installation and testing, and costs associated with each activity in the bar chart.

B. Progress Schedules. - Within 30 calendar days of contract award, the contractor shall submit the schedule and work plan. **A Notice to Proceed will not be issued until the schedule is approved.**

1.3 EXECUTION

A. Review and Evaluation. - The Contractor shall participate in a review and evaluation of the proposed schedule with the Contracting Officer. Any revisions necessary as a result of the review shall be re-submitted for approval of the Contracting Officer within 14 days after the conference. The approved schedule shall then be used by the contractor for planning, organizing, and directing work, reporting progress, and requesting payment for work accomplished. If the contractor, thereafter, desires to make changes in the schedule, the Contracting Officer shall be notified in writing, stating the reasons for the change. If the Contracting Officer considers the change to be of a major nature, the contractor may be required to revise the schedule and submit it for approval, without additional cost to the government.

B. Monthly Update. - The contractor shall meet with the COR at monthly intervals to discuss the construction progress. If the project is behind schedule and requires a change in the schedule, the contractor shall submit a revised schedule with a description of the delaying factors and their impact, and an explanation of corrective actions taken or proposed.

C. Payment. - The monthly update shall show the activities or portions of activities completed during the reporting period, and their total value will be the basis for the contractor's periodic request for payment. Payment will be based on the total value of such activities completed or partially completed after verification by the Contracting Officer.

D. Submission Requirements. - Schedule charts shall be on (minimum) 11" x 17" size paper. Update charts shall show the date of the latest revision. Schedule charts with revisions and monthly updates shall be submitted in three copies.

E. Requirements for Schedule Chart. -

1. Activities.- The significant activities to be included in the schedule chart shall include, but not be limited to:
   a) The milestones listed in Section 01010 1.2. D.
   b) Any system shutdowns or cut-overs
   c) Any other significant activities the contractor or FAA feels necessary.

2. Format - Contractor should use Microsoft Project, cost loaded.

END OF SECTION 01042

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SECTION 01300 SUBMITTALS

PART 1 – GENERAL

Applicable provisions of this Section and other provisions and requirements of the Contract Documents apply to all sections, except as modified in Sections of Divisions 2 through 16.

1.1 SUMMARY

Submit Shop Drawings, product data, samples, warranties, certificates, test reports and third party disposal letters as required by the contract documents.

1.2 RELATED REQUIREMENTS

A. Section 01040: Coordination and Testing

B. Section 01651: Materials and Equipment

C. Section 01800: Closeout Procedures

1.3 SUBMITTALS

Submittals required include, but are not necessarily limited to, the following:

A. Submittal schedule

B. Construction progress schedule

C. Submittal log

1.4 SUBMISSION REQUIREMENTS

A. Number of Copies - Submit in ample time for approval before installation. Unless otherwise noted, submit five (5) copies of documents to the Resident Engineer (RE). Three (3) copies will be retained by the RE. If additional copies are required, provide the quantity and submit additional copies to meet this requirement.

B. Time for Approval - Receive submittal approvals prior to starting the work. Time necessary for government approval or disapproval of samples, certificates, test reports, and shop drawings will not be more than thirty (30) calendar days after receipt of a submittal. All materials installed in the work shall match the approved submittals. After a submittal has been approved, no substitutions will be permitted without written approval by the RE. No extension of Contract Time will be authorized because of failure to transmit to the RE sufficiently in advance of the Work to permit processing.

C. Submittal Approval - The checking, marking or approval of the submittal by the FAA shall not be construed as a complete check, but will indicate only that the product or

method of construction and detailing is satisfactory. Approval will not relieve the contractor of the responsibility for compliance with the specifications or for any error which may exist. The Contractor shall be responsible for the dimensions and design of adequate connections, details, and satisfactory construction of all work. Possible approval actions taken by the FAA include:

1. Approved as submitted - If "approved as submitted" is marked by the RE, each copy of the submittal will be identified as having received such approval by being stamped and dated. After submittal has been approved, no substitutions will be permitted without written approval by the RE.
2. Approved as noted - If "approved as noted" is marked by the RE, the submittal is satisfactory contingent upon Contractor acceptance of corrections, notations, or both, and if accepted, does not require resubmittal.
3. Not approved - If "not approved" is marked by the RE, the submittal data does not meet job requirements and the Contractor must resubmit. If the submittal is disapproved, the Contractor shall resubmit the corrected material in the same quantity as specified for the original submittal. Correct disapproved submittals and resubmit for approval by the RE. Approval of resubmittals require an additional fourteen (14) calendar days.
4. Submittal Schedule - Identify within the Contractor's Construction Schedule a schedule of submittals for shop drawings, material approval, etc., showing the dates when submittals will be submitted for the project.
   a) Contents - On the schedule indicate the following information:
      1) Schedule date for submittal
      2) Related Section number.
      3) Submittal category (Shop Drawings, Product Data, or Samples).
      4) Name of the subcontractor (if applicable)
      5) Description of the part of the Work covered.
5. Distribution - Following response to the initial submittal, print and distribute copies to the RE, Government, subcontractors, and other parties required to comply with submittal dates indicated. When revisions are made, distribute to the same parties. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
6. Schedule Updates - Revise the schedule after each meeting or activity where revisions have been recognized or made.

D. Construction Progress Schedule – The progress chart to be prepared by the Contractor pursuant to the Contract Clause entitled "SCHEDULES FOR CONSTRUCTION CONTRACTS" shall consist of network analysis system, or pertchart (barchart). The contractor shall be required to complete the work within the contract time limits after

receipt of Notice to Proceed excluding the FAA holiday moratorium as specified in section 01010.

1. Contractor should use Microsoft Project, cost loaded. A minimum of 30 activities should be included.

2. The diagram shall show a continuous activity flow from left to right. The diagram shall show the sequence in which the work is to be accomplished as planned by the Contractor.

3. Dates shall be shown on the diagram for start of the project, any milestones required by the contract, and contract completion.

4. The critical path shall be clearly identified.

5. Network activities shown shall include submittal and review of shop drawings and samples and procurement of materials and construction activities.

6. Government activities that affect progress shall be shown. These include but are not limited to: Notice-to-Proceed, approvals, and inspections.

NO PHYSICAL CONSTRUCTION WORK AT THE SITE MAY TAKE PLACE UNTIL THE CONTRACTOR SUBMITS AND THE GOVERNMENT APPROVES THE SCHEDULE. Government review of schedule submittal(s) will not exceed thirty (30) calendar days. Resubmittal, if necessary shall not exceed fourteen (14) calendar days.

E. Two-week "Look Ahead" schedule - This schedule may be of the contractor's choosing, either bar chart or CPM form. Only activities scheduled to be occurring during the forecasted two week time periods are to be shown. Schedules shall be submitted weekly. Early and Late Start and Finish dates, and subcontractors involved are data to be included in the schedule.

F. Submittals - Submit shop drawings, material and equipment lists, and all other data required under various headings of these specifications necessary to permit commencement of work. RE will return the submittals within 30 calendar days after receipt, indicating approval or disapproval.

G. Submittal Preparation - Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

1. Transmittals - All submittals shall be accompanied by transmittal letters identifying the contents of the submittal. It shall be clearly indicated on the transmittal letter with a statement and signature of the Contractor that the submittal item was verified for compliance with the contract requirements and approved by the Contractor. Transmittal letters shall consist of one original.
2. Contents - Submittals shall be complete and detailed and assembled into sets. Lack of completeness or clarity or inadequate description will be justification for disapproval. Submittals shall bear the following information:

a) Name of project or facility and contract number;
b) Date of submission;
c) Contract drawing number and latest revision;
d) Specification page and paragraph number;
e) Name of contractor and subcontractor or supplier/manufacturer;
f) Clearly identified contents and location of work;
g) Any proposed variances to specification requirements;
h) Contractor's approval certifying he checked and coordinated the work of other trades.

1.5 SHOP DRAWINGS

A. Applicable Documents -

B. Presentation - Present drawings in a clear and thorough manner. Identify details by reference to sheet and detail, building wing and section shown on contract drawings.

1. Submit newly prepared information drawn accurately to scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings. Standard information prepared without specific reference to the Project is not a Shop Drawing.
2. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings.

C. Contents - Provide the following information on each submittal:

1. Submittal number (paragraph 2.1 of this Section) and identify as "Part A" or "Part B" item
2. Date of submission
3. Name of project and facility (full name)
4. Name of Contractor or Subcontractor
5. Reference to drawing number (with revision, if applicable) and/or specification section.
6. Clearly identify contents and location of work.
7. Contractor's approval certifying he checked and coordinated the work of other trades.
8. Dimensions.
9. Identification of products and materials included by sheet and detail number.
10. Compliance with specified standards.
11. Notation of coordination requirements.
12. Notation of dimensions established by field measurement.
13. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 36 by 48 inches.

D. Submittal - Submit blue- or black-line prints for the RE's review. Submit five copies, of which three will be retained by the RE.

1. One of the prints returned shall be marked up and maintained as a "Record Document."
2. Do not use Shop Drawings without an appropriate final stamp indicating action taken.

1.6 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, Material Safety Data Sheets (MSDS), standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves, for all materials brought on site.

B. Preparation

1. Clearly mark or highlight each copy to identify pertinent site specific products or models the Contractor intends to use
2. Highlight/clearly indicate all performance characteristics and capacities
3. Highlight/clearly indicate all dimensions and clearances required

Note: If the submittal is not clearly marked, regarding the above pertinent data, the submittal will be returned marked "DISAPPROVED".

1.7 WARRANTIES/GUARANTIES

A. Assemble two (2) copies with original signatures of warranties executed by each of the respective manufacturers, suppliers, and subcontractors into a warranty book and prepare a Table of Contents.

B. Additional Data - Provide complete information for each item, include the following:

1. Product or work team
2. Firm, with name of principal, address, and telephone
3. Scope
4. Effective dates of warranty based on Final Acceptance of the item.
5. Information for owner's personnel on proper procedures to evoke the warranty in case of failure and instances which might affect the validity of warranty

C. Warranties - Effective after project completion and acceptance by the FAA.

1.8 CERTIFICATES

Assemble certificates executed by each of the respective manufacturers, suppliers, and subcontractors.

A. Additional Data - Provide complete information for each item to certify compliance with contract documents.

1. Product or work item
2. Firm, with name of principal
3. Scope of compliance
4. Signature by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.

PART 2 – MATERIAL

NOT USED

PART 3 – EXECUTION

3.1 GENERAL

Submittals are required for, but not limited to, the items listed in the specifications or on the drawings. The following is a partial list of submittals required: Schedules, Manufacturer's Literature, Shop Drawings, Samples, Test Reports, Warranties, Certificates, Design Calculations, MSDS, and Installation Instructions. This list should not be construed as a complete list of all submittals required. Submittal dates shall comply with this specification unless a more stringent date is specified. Substitutions and all requested changes will require a submittal.

3.2 SCHEDULE FOR CRITICAL SUBMITTALS

Process after the construction contract has been awarded and prior to NTP:

All Critical Submittals are due 30 calendar days after the contract has been awarded. See below for a list of critical submittals. The construction Notice to Proceed (NTP) will not be issued until all critical submittals are approved. All other submittals shall be submitted and approved prior to installation or construction. Critical submittals include the following:

1. Construction Schedule
2. Concrete Mix
3. Chain Link

No later than two weeks after the contract has been awarded, the Contractor shall be available to participate in a meeting/telecom with the Contracting Officer, Resident Engineer and Office Project Engineer to discuss and coordinate the following:

1) Contractor's FAA point of contact for submitting the Critical Submittals.
2) Discuss the submittal process and forms.
3) Discuss process and forms for request of FAA security badges.
4) Discuss the proposed date for Notice to Proceed (NTP)

PART 4 – QUALITY ASSURANCE

NOT USED

* * * **END OF SECTION** * * *

SECTION 01651 MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1-1 SUMMARY

A. General. - Material and equipment incorporated into the work shall conform to applicable specifications and standards and comply with size, make, type and quality specified, or as specifically approved in writing by the COR. Manufactured and fabricated products shall be designed, fabricated and assembled in accordance with the best engineering and shop practices. Like parts of duplicate units shall be manufactured to standard sizes and gages and shall be interchangeable. Two or more items of the same kind shall be identical and manufactured by the same manufacturer. Products shall be suitable for service conditions. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically approved in writing. Do not use material or equipment for any purpose other than for which it is designed or specified. Furnish and install products specified, under options and conditions for substitution stated in this section.

1. Manufacturer's instructions.- When contract documents require that installation of work shall comply with manufacturer's printed instructions, copies of such instructions shall be distributed to parties involved in the installation, including two copies to the COR. Maintain one set of complete instructions at the job site during installation and until completion. Products shall be handled, installed, connected, cleaned and conditioned in strict accordance with such instructions and in conformity with specified requirements. If job conditions or specified requirements conflict with manufacturer's instructions, the contractor shall consult with the COR for further instructions. All work shall be performed in accordance with manufacturer's instructions. No preparatory step or installation procedure shall be omitted unless specifically modified or exempted by contract documents.

2. Transportation and handling. - Products shall be delivered in undamaged condition, in manufacturer's original containers or packing, with identifying labels intact and legible. Shipments shall be inspected to ensure compliance with requirements of contract documents and approved submittals, and products are properly protected and undamaged immediately on delivery. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packing.

3. Storage. - Unless specified, products shall be stored in accordance with manufacturer's instructions, with seals and labels intact and legible. Products subject to damage by the elements shall be stored in weather tight enclosures.

4. Temperature. - Temperature and humidity shall be maintained within the ranges required by the manufactures instructions. Fabricated products shall be stored above the ground, on blocking or skids to prevent soiling or staining. Products that are subject to deterioration shall be covered with impervious sheet coverings and adequate ventilation shall be provided to avoid condensation.

5. Substitutions. - A separate request for each substitution shall be submitted. Each request shall be supported with complete data substantiating compliance of proposed substitution with the requirements stated in the contract documents. Each request shall include product identification, manufacturer's literature including address, product description, reference standards and performance and test data. Samples shall be submitted as applicable. An itemized comparison of the proposed substitution with the product specified shall be included. The following information shall also be included: data relating to changes in the construction schedule; list of changes required in other work or products; and accurate cost data. Substitute products shall not be ordered or installed without written acceptance. In making a formal request for substitution, the contractor represents that he has investigated the proposed products and has determined that it is equal to or superior in all respects to that specified. The contractor ascertains that he will provide same warranties or bonds for substitutions as for product specified. That he will coordinate installation of accepted substitution into work to be complete in all respects; that he waives claims for additional costs caused by substitution which may subsequently become apparent; and that cost data is complete and includes related costs under his contract. Primarily, an "or equal" product will not be considered a substitution. If an actual substitution is accepted, it shall be done only by formal contract modification and not by a submittal approval.

6. New equipment and materials – All contractor supplied materials and equipment that will remain in the government's custody after contract completion, shall be new. Refurbished and or used equipment and materials are disallowed for construction purposes under this contract.

END OF SECTION 01651

* * * * *

SECTION 01652 PROTECTION OF WORK

PART 1 - GENERAL

1.1 SUMMARY

A. Requirements Included. - It shall be the Contractor's responsibility to provide protection of work from weather, physical damage, improper use, and other adverse natural conditions. It shall be the responsibility of the Contractor to replace any damaged work including finishes, material, and equipment.

1.2 RELATED REQUIREMENTS. - The Respective Section of the Specification covering items of work.

Section 01710: Cleaning

A. Protection during Installation.

1. Base Materials. - Provide protection of base materials to receive finishes from physical damage.

2. Protection after Installation. - Provide protection of installed products and finished surfaces to prevent damage from subsequent operations. Remove when no longer needed, prior to completion of work.

3. When some activity must take place in order to carry out the contract, obtain and abide by recommendations of installer for protection of surface. Remove upon completion of the activity.

END OF SECTION 01652

* * * *

SECTION 01710 CLEANING

PART 1 - GENERAL

1.1 SUMMARY

The scope of this project will be performed in a partially occupied special use environment. Daily cleaning and protection of critical electronic equipment shall be a requirement. All prospective bidders are encouraged to visit the project site to ascertain the criticality of maintaining a clean and dust free environment.

A. Requirements Included.

1. Execute cleaning during the progress of work.
2. Execute cleaning for final inspection.
3. Execute cleaning at completion of the work.

1.2 RELATED REQUIREMENTS

Section 01800 Contract Closeout.

1.3 PRODUCTS- Not Used

1.4 EXECUTION

A. Disposal Requirements. - Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.

B. Final Cleaning.
1. Broom clean exterior paved surfaces, repair damaged sod areas with sod and rake. Clean other surfaces of the grounds.
2. Prior to final completion, or owner occupancy, Contractor shall conduct an inspection of exterior surfaces, and all work areas to verify that the entire work is clean.

C. During Construction. - Maintain all areas under Contractor's control free of extraneous debris. Conduct a specific maintenance program to prevent accumulation of debris at the construction site, storage and parking areas, and along access roads and haul routes.

D. ATCT Operational Areas. - Clean up after each work shift.

E. Debris Collection. - Provide containers for debris deposit and schedule periodic collections and disposal of debris. Provide additional collections whenever the periodic schedule is inadequate to prevent accumulation.

END OF SECTION 01710

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SECTION 01730 - OSHA SAFETY REQUIREMENTS

PART 1 – GENERAL

1.1 SCOPE

A. This section identifies some of the requirements of the OSHA Construction Standard.

B. Formulation of a site specific safety plan

1.2 CONTRACTOR RESPONSIBILITY

A. General Safety Provisions - The Contractor shall bear full responsibility to provide safe working conditions for its employees and Contractors. The Contractor shall not permit any employee or Subcontractor to work in surroundings or under working conditions that are unsanitary, hazardous, or dangerous to the health and safety of the employee.

B. Accident Prevention - The Contractor shall bear the responsibility of maintaining an accident prevention program such that frequent and regular inspections of the job site, materials and equipment are made by a competent person designated by the employer.

C. Use of Equipment - The Contractor shall not permit the use of any machinery, tool, material, or equipment that is not in compliance with OSHA regulations. The employer shall permit only those employees qualified by training and/or experience to operate equipment and machinery.

1.3 SUBMITTALS

A. Submittals required include, but are not necessarily limited to, the following:

1. Contractor Safety Plan

1.4 CONTRACTOR RESPONSIBILITY

A. The FAA shall not be held responsible for safety inspections to assure Contractor conformance with the OSHA safety regulations. The FAA, however, reserves the right to notify the Contractor of any deficiencies regarding worker safety.

B. The FAA will evaluate the Contractor on its safety performance, including that of its Subcontractors. The number and severity of safety and security violations will be considered in this evaluation. Contractor safety violations are cause for termination for default, may result in notification of the Contractor's bonding company, and will affect the Contractor's opportunity to propose on future work. Failure to correct such deficiencies may impact the Contractor's ability to work on future FAA contracts.

1.5 OSHA REGULATIONS

A. The Contractor shall comply with the latest Occupational Safety and Heath Administration regulations (CFR 29 Part 1926) regarding safety in the work area.

B. The Contractor shall be responsible for obtaining copies of non-FAA referenced documents without additional cost to the FAA. If Contractor requests a copy of FAA directives, they may be obtained by contacting the Contracting Officer.

C. The Contractor is not relieved from adhering to other OSHA requirements not listed herein. The Contractor shall consult the latest referenced OSHA documents for safety regulations.

1. Documents:
   a) OSHA Documents:
      1) CFR 29 Part 1926Safety and Health Regulations for Construction
      2) CFR 29 Part 1910 General Industry Standards Applicable to Construction Industry
   b) FAA Documents:
      1) FAA Order 3900.49 Control of Hazardous Energy During Maintenance, Servicing and Repair

1.6 SAFETY PLAN

The contractor must develop and implement a site specific comprehensive Health and Safety Plan (HASP) based on the scope of work, for his or her employees as well as others in the area and the properties around. It shall cover all aspects of onsite construction operations and activities associated with the contract. This plan must comply with 29 CFR 1926, FAA Order 3900.19B, other applicable health and safety regulations and any project-specific requirements. The contractor must provide the Contracting Officer with a copy of this plan. Acceptance of the contractor's HASP only signifies that the plan generally conforms to the requirements of the contract. It does not relieve the contractor of the responsibility for providing with a safe and healthful work environment. At a minimum the HASP shall address the following:

A. Workplace address

B. Name and address of the principal contractor

C. Key Personnel, phone nos and addresses

D. Estimated duration of the work

E. Hazard assessment and identification of the hazards in the scope of work

F. Mitigation of hazards and proposed control measures for the risks

G. Hazard Communication methods

H. How the controls will be implemented

I. Personal Protective Equipment

J. Training

K. Temperature Extreme

L. Medical Surveillance

M. Exposure Monitoring and Air Sampling

N. Site Control

O. Emergency Response/Contingency Plan

P. Emergency Action Plan

Q. Confined Space Entry

R. Spill Containment

S. Documentation and Record Control

T. Arrangements for monitoring and reviewing controls

U. Lock-out and Tag-out

The plan must be written so it is easy to understand, signed and dated by the General Contractor. It must be available for the length of the project. The General Contractor cannot allow work to start unless the plan has been discussed with or a copy given to all relevant people and the plan is readily available for inspection. The plan must be amended if there are changes in how risks will be managed. The General Contractor must inform any affected person of the change.

PART 2 – MATERIAL

NOT USED

PART 3 – EXECUTION

3.1 CFR 29 PART 1926 - SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION

A. This section contains a partial listing of the referenced OSHA standards. The Contractor is responsible for adhering to all applicable regulations including those not specifically referenced herein.

1. Subpart D (Occupational Health and Environmental Controls) - Contractor shall furnish adequate supply of potable water in containers clearly marked as potable water. Containers containing non-potable water shall be clearly marked. Contractor shall furnish toilet facilities based on the number of employees present on the job-site. A minimum of 1 facility is required for less than 20 employees. See CFR 29 Part 1926 Subpart D for complete requirements.

2. Subpart E (Personal Protective Equipment) - The Contractor shall provide adequate protection for the head, hearing, and eyes for all employees working in an area where hazards to the head, ear and eyes exist. See CFR 29 Part 1926 Subpart E for complete requirements.
3. Subpart I (Tools) - All hand tools and power tools and similar equipment whether furnished by the Contractor or the employee shall be maintained and operated in a safe condition. Personal protection shall be used when applicable. The use of tools shall be limited to the intended use of said tools. See CFR 29 Part 1926 Subpart I for complete requirements.
4. Subpart K (Electrical) - The Contractor shall furnish ground fault protection for all electrical equipment used on the jobsite. Extension cords shall be three wire ground in good shape. Installation of the facilities will require energizing numerous circuits. The Contractor shall protect against electrical shock by methods such as posting warning signs, supplying insulated gloves, locking out and tagging de-energized circuits, and other similar methods. See CFR 29 Part 1926 Subpart K for complete requirements.

3.2 CFR 29 PART 1910 - GENERAL INDUSTRY STANDARDS APPLICABLE TO CONSTRUCTION INDUSTRY

A. This section contains a partial listing of the referenced OSHA standards. The Contractor is responsible for adhering to all applicable regulations including those not specifically referenced herein.

1. Section 1910.147 - Contractor shall maintain a written hazardous energy control procedure in accordance with CFR 29 1910.147. The written procedure shall describe contractor's responsibilities regarding shift changes or personnel changes. A specific coordinated lockout/tagout procedure shall be recorded in writing and signed by the Contractor and Contracting Officer with copies to each party.
2. Section 1910.120 - The Contractor shall develop and implement an Emergency Response and Contingency Plan in accordance with OSHA Standard 29 CFR 1910.120. In the event of an emergency associated with remedial action, the Contractor shall, without delay, take diligent action to remove or otherwise minimize the cause of the emergency; alert the Contractor; and institute whatever measures might be necessary to prevent any repetition of the conditions of actions leading to, or resulting in, the emergency. Emergency contact names and telephone numbers shall be posted at all project phones and in site-support vehicles as well as included within the plan.

PART 4 – QUALITY ASSURANCE

NOT USED

* * * END OF SECTION 01730 * * *

SECTION 01800 CONTRACT CLOSE OUT

PART 1 - GENERAL

1.1 SUMMARY

The contractor shall require each subcontractor engaged upon the work to bear full responsibility for cleaning up during and immediately upon completion of his work. All rubbish, waste, tools, equipment and other apparatus caused by or used in the execution of his work shall be removed. This shall in no way be construed to relieve the contractor of his primary responsibility for maintaining the building and the site clean and free of debris, and leaving all work in a clean and proper condition acceptable to the COR. Protection shall be maintained until all work has been completed.

A. Rubbish removal. - Immediately after unpacking, all packing material, case lumber, wrappings, or other rubbish, flammable or otherwise, shall be collected and removed from the building and the premises.

B. Overall cleaning.- Immediately before the final inspection, the entire work area shall be thoroughly cleaned by the contractor, including but not limited to the following:

1. All construction facilities, debris and rubbish shall be removed from the site.
2. All tools, scaffolding, temporary utility connections or buildings, belonging to the contractor or used under his direction shall be removed from the site.

1.2 PROJECT RECORD DOCUMENTS

A. Maintenance of documents.- The following documents shall be maintained at the project site:

1. Contract drawings
2. Contract specifications
3. Addenda
4. Reviewed shop drawings
5. Change orders
6. Field test reports
7. Project correspondence
8. Other modifications to contract

B. Storage and use of documents. - Store record documents apart from documents used for construction; do not use record documents for construction purposes. Keep documents in clean, dry, legible condition; provide file cabinets and racks for storage of drawings.

C. Marking devices. - Use red colored pencil for all marking.

D. Recording and labeling. - Label each document "Project Record" in 1-inch high printed block letters. Keep record documents current. Do not conceal or cover up any item of work until the information has been recorded.

E. Submittals. - At completion of project, deliver record documents to COR. Accompany submittal with transmittal letter containing the following:

1. Date

2. Project title and number
3. Contractor's name and address.
4. Title and number of each record document
5. Certification that each document as submitted is complete and accurate.
6. Signature of contractor, or his authorized representative

1.3 CONTRACT DOCUMENTS

A. Contract drawings.- Legibly mark to record actual construction:

1. Horizontal and vertical location of underground and overhead utilities and appurtenances referenced to permanent surface improvements.
2. Location of internal utilities and appurtenances concealed in construction referenced to visible and accessible features of structure.
3. Field changes of dimension and detail.
4. Changes made by change order or field order.
5. Details not on originally specified drawings.

B. Contractor specifications and addenda.- Legibly mark each section to record:

1. Changes made by change order or field order.
2. Other matters not originally specified.

C. Shop drawings. - Shop drawings shall be maintained as record documents; legibly annotate drawings to record changes made after review.

1.4 COMPLETION CERTIFICATE

When the contractor considers the work complete, the contractor shall submit written certification that contract documents have been reviewed; work has been inspected for compliance with contract. Second, the contractor also certifies that work is completed, premises cleaned and ready for inspection.

1.5 FINAL INSPECTION

A written request for a final inspection shall be sent to the Resident Engineer fourteen (14) calendar days prior to the requested inspection date. The final inspection shall be scheduled at a mutually agreed upon date, and will be acknowledged by the Resident Engineer. The contractor shall develop his own pre-final inspection and correct all deficiencies prior to requesting the final inspection. The pre-final report shall accompany the final inspection request.

If, during the final inspection, the Resident Engineer, in concurrence with the inspection team and the Contracting Officer, determines that the contractor was not ready for the final inspection, based on the contractor not meeting all of the contractual requirements, all costs incurred by the Government for additional inspections shall be deducted from the contract (including but not limited to: travel cost, per diem, salaries of all concerned parties, consultant engineer personnel, and FAA personnel required to participate in the final inspection). This dollar amount shall be the actual cost incurred by the FAA to perform the final inspection.

1.6 PUNCH LIST

During the final inspection, the Resident Engineer, in coordination with the regional office and local FAA personnel shall develop a list (Punch List) of all deficiencies (unsatisfactory work, latent or patent defects, etc.). A copy of the punch list will be furnished to the contractor as a draft list after the final inspection, while the original copy will be forwarded to the Contracting Officer. Only one official punch list shall be generated by the inspection team.

The Contracting Officer will furnish to the contractor the official punch list within fourteen calendar days after completion of the final inspection. The contractor shall be allowed 30 calendar days to correct all deficiencies noted.

1.7 ACCEPTANCE OF WORK

The contractor shall correct discrepancies noted during the final inspection, clean the premises, and notify the Resident Engineer that the work is ready for acceptance. The Resident Engineer shall verify that the official punch list has been accomplished and initialize and date each item as it is completed.

END OF SECTION 01800

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SECTION 02831
CHAIN LINK FENCE AND GATES

PART 1 - GENERAL

1.01 WORK INCLUDED: The Contractor shall furnish all labor, materials, equipment, and incidentals necessary to install chain link fencing.

1.02 QUALITY ASSURANCE:

A. Single-Source Responsibility: Obtain chain link fence, including accessories, fittings, and fastenings, from a single source.

1.03 SUBMITTALS: Submittals shall be in accordance with Section 01300 SUBMITTALS.

1.04 STANDARDS AND REFERENCES: The current version of the following standards forms a part of this specification and is not Government provided.

A. American Society of Testing and Materials (ASTM)

A 53	"Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-coated Welded and Seamless"
A90 -	Standard Test Method for Weight of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
A121-	Standard Specification for Zinc-Coated Steel Barbed Wire.
A 123	"Specification for Zinc (Hot-Dipped Galvanized) Coatings on Iron and Steel Products:
A 392	"Specification for Zinc-Coated Steel Chain-Link Fence Fabric"
A525-	Standard Specification for General Requirements for Steel Sheet, Zinc-Coated by the Hot-Dip Process.
A 585	"Specification for Aluminum-Coated Steel Barbed Wire"
A641-	Standard Specification for Zinc-Coated Carbon Steel Wire.
A824-	Standard Specification for Metallic-Coated Steel Marcelled Tension Wire for Use with Chain Link Fence.
C 33	"Specification for Concrete Aggregates"
C 150	"Specification for Portland Cement"
F567-	Standard Practice for Installation of Chain-Link Fence.
F626-	Standard Specification for Fence Fittings.
F669-	Standard Specification for Strength Requirements of Metal Posts and Rails for Industrial Chain-Link Fence.
F900-	Standard Specification for Industrial and Commercial Swing Gates.
F1083-	Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated Welded, for Fence Structures.
F1234-	Standard Specification for Protective Coatings on Steel Framework for Fences.
A 370	Standard Test Methods and Definitions for Mechanical Testing of Steel Products

1.05 JOB CONDITIONS: Field Measurements shall be accomplished to verify layout information for fence shown on the Drawings. Report any differences to the Contracting Officer (CO) prior to any fabrication or installation.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. CHAIN LINK FABRIC shall be No. 9 gage wire woven in 2-inch mesh zinc-coated (galvanized) with top and bottom selvage to have a twisted and barbed finish. Fabric shall be seven (7) feet in height and conform to ASTM A 392, Class 2.

B. BARBED WIRE shall be two 12 gage twisted aluminized steel line wires with No. 14 gage aluminum 4 point barbs spaced not more than 4 inches apart. Conform to ASTM A 585, Type I.

C. BARBED WIRE SUPPORTING ARM shall be 12 gage pressed steel increasing the height of the fence to 8 feet overall. The arms shall extend 45 degrees from the horizontal. Arms shall be capable of withstanding without failure 250 pounds downward pull at the outermost end of the arm. Fasten wires to the arm slots by heavy pins.

D. LINE POSTS shall be 2.375 inch O.D. schedule 40 galvanized-steel pipe weighing not less than 3.65 pounds per lineal foot. Conform to ASTM F 1083.

E. TERMINAL POSTS shall be 4.00 inch O.D. schedule 40 galvanized-steel pipe weighing not less than 9.11 pounds per linear foot. Use at end, corner, pull and at places where grade changes.

F. GATE POSTS. (NA).

G. TENSION WIRE: Steel tension wire shall be marcelled or crimped coil spring hard tempered carbon steel wire. Wire shall be galvanized, No. 9-gage, coiled spring wire, provided within the bottom 4 inches of the fabric. Zinc coating shall weigh no less than 1.6 ounces per square foot. Attach to fence fabric with 9– gage rings on 14-inch centers. Crimp rings tight to prevent noise. No loose or rattling equipment will be allowed.

H. BRACES shall be 1 ½ diameter.

I. WIRE TIES for tying fabric to line posts and top rail shall be 9 gage zinc-coated (galvanized) steel wire ties spaced at 14 inches on center.

J. POST TOPS shall be pressed steel or malleable iron (designed as a weather-tight closure cap for tubular posts).

K. STRETCHER BARS (for end, corner, pull or gate posts only) shall be one piece lengths equal to full height of fabric with a minimum cross section of 1/4 X 3/4 inch. Provide one stretcher bar for each gate, end post, and two for each corner and pull post.

L. STRETCHER BAR BANDS shall be heavy pressed steel, spaced not over 14 inches on center to secure stretcher bars to end, corner, pull and gate posts. Bands shall be within four (4) inches of the top and bottom of fence fabric.

M. REINFORCMENT: Taut reinforcing wires shall be 9-gauge installed and interwoven with or affixed with 9-gauge fabric ties spaced uniformly between the top and bottom of the fence fabric.

N. CONCRETE shall conform to ASTM C 94. Mix shall be designed to obtain concrete with a minimum 28 day compressive strength of 3,000 psi.

2.02 GATES: (NA)

2.03 FABRICATIONS:

A. All structural and roll formed shapes shall conform to provisions of ASTM A 123 for galvanized coating.

B. All tubular members shall comply with provisions of ASTM A 53, Schedule 40, for weight and coating.

PART 3 - EXECUTION

3.01 PREPARATION: Complete final grading prior to starting fence installation(s), when required.

3.02 INSTALLATION:

A. The fence shall be installed by skilled and experienced fence erectors in accordance with the drawings and the manufacturer's installation instructions on lines and grades shown on the drawings.

B. The excavation(s) shall not begin prior to completion of final grading. Drill holes for post footings in firm, undisturbed or compacted soil. Holes shall have a diameter equal to 4 times the diameter of the post except where otherwise indicated on the drawings. Excavate hole depths approximately 3 inches deeper than post bottom with bottom of line posts set not less than 36 inches in concrete base. Place concrete around posts in a continuous pour, tamp for consolidation. Check each post for vertical and top alignment. Maximum spacing between line posts is 10 feet. Set keepers, stops, sleeves and other accessories into concrete as required. All posts shall be able to pass a pull test when a force of 48 pounds is applied perpendicular to the fence at the top of the post. The post should not deflect more than 1 inch at the location where the force is applied. Post tops shall be riveted or shall be spot-welded. No loose or rattling fittings will be allowed.

C. Install brace assemblies so posts are plumb when diagonal rod is under proper tension. Extend braces from each terminal post to the first adjacent line post. Fasten braces securely to posts by heavy pressed steel connections and then truss braces from line post back to terminal post with 3/8-inch round truss rod complete with tightening unit.

D. Install tension wires before stretching fabric and tie to each post with ties or clips.

E. Pull fabric taut and tie to the posts, rails, and tension wires. Install fabric on exterior side of the line post, and anchor to framework so that fabric remains taut after pulling force is released. Pull fabric taut so that the maximum deflection of fabric is 2 inches when a thirty-pound pull is exerted perpendicular to the center of the panel.

F. Lace stretcher bars through fabric and secure to posts with metal bands spaced not over 14 inches on center. Tighten stretcher bar bands, wire ties, and any other fasteners securely. Fabric should not be free to move along the framework.

G. Install three (3) strands of barbed wire parallel on each extension arm; on the exterior side of fence, unless otherwise shown. Barbed wire support arms shall have a tight press-fit or shall be spot-welded to preclude surreptitious removal. No loose or rattling fittings will be allowed. Pull wire taut to ninety pounds of tension.

H. Install gates. (NA).

I. Install nuts for tension bands and carriage bolts on the side of the fence opposite the fabric side. Peen bolts or score threads to prevent removal of nuts for added security.

J. Tie wires shall be U-shaped to the pipe diameters to which attached. Ends of tie wires shall be twisted on the secure side of the fabric not less than two full turns and bent so as not to present a hazard. All ties shall be 9-gage and spaced no more than 14 inches on center.

K. The standard height of a security fence shall be eight (8) feet. This includes a fabric height of seven (7) feet plus a top guard providing an extension of one (1) foot vertically, as described above. The fence fabric must be within two (2) inches of firm packed ground and will be anchored in such a manner as to preclude the fence fabric being lifted more than four (4) inches from the ground.

3.03 Fences shall be grounded per FAA-STD-019.

3.04 FIELD QUALITY CONTROL: Upon completion of installation of the fence, an acceptance test to verify the installation of the fence as indicated on section 3.02 shall be conducted in a manner approved by and in the presence of the CO. The fence must perform in a manner acceptable to the CO before final acceptance will be made by the Government.

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes cast-in-place concrete, including reinforcement, concrete materials, mixture design, placement procedures, and finishes for:

1. Concrete Sidewalks and Concrete Line Posts

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

1. Design Mixtures: For each concrete mixture.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has completed concrete work similar in material, design and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

B. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.

C. Comply with ACI 301.

D. Comply with ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

PART 2 - PRODUCTS

2.1 FORMWORK

A. Furnish formwork and formwork accessories according to ACI 301.

2.2 STEEL REINFORCEMENT

A. Plain-Steel Welded Wire Fabric: ASTM 185, fabricated from as-drawn steel wire into flat sheets, WWF 4X4.

2.3 CONCRETE MATERIALS

A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source throughout Project:

1. Portland Cement: ASTM C 150, Type I.

B. Normal-Weight Aggregate: ASTM C 33, graded, 1-1/2-inch nominal maximum aggregate size.

C. Water: ASTM C 94.

2.4 ADMIXTURES

A. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.

B. Air-Entraining Admixture: ASTM C 260.

C. Water-Reducing Admixture: ASTM C 494, Type A.

2.5 RELATED MATERIALS

A. Vapor Retarder: Polyethylene sheet, ASTM D 4397, not less than 10 mils thick; or plastic sheet, ASTM E 1745, Class C.

B. Fine-Graded Granular Material: Clean mixture of crush stone, crush gravel, and manufactured or natural sand; ASTM D 448, Size 10, with 100 percent passing a No. 4 sieve and 10 to 30 percent passing a No. 100 sieve, complying with deleterious substance limits ASTM C 33 for fine aggregates.

C. Joint Filler Strips: ASTM D 1752, cork or self expanding cork.

D. Bonding Agent: ASTM C1059, Type 11 and non-redispersible acrylic emulsion or styrene butadiene.

E. Epoxy Bonding Adhesive; ASTM C881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class and grade to suit requirements and as indicated.

1. Type 1V and V, load bearing for bonding hardened or freshly mixed concrete to hardened concrete.

2.6 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighting approximately 9 oz/sq. yd. dry.

B. Moisture Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.

C. Water; Potable.

2.7 CONCRETE MIXTURES

A. Normal-Weight Concrete: Prepare design mixes, proportioned according to ACI 301, as follows:

1. Minimum Compressive Strength: 3000 psi at 28 days.
2. Slump Limit: 4 inches, plus or minus 1 inch.

2.8 CONCRETE MIXING

A. Ready-Mixed Concrete; Comply with ASTM C 94.

1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

A. Design, construct, erect, brace, and maintain formwork according to ACI 301.

3.2 VAPOR RETARDERS

A. Install, protect, and repair vapor retarders according to ASTM E 1643; place sheets in position with longest dimension parallel with direction of pour.

1. Lap joints 6 inches and seal with manufacturers recommended adhesive or joint tape.

3.3 STEEL REINFORCEMENT

A. Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.

3.4 CONCRETE PLACEMENT

A. Comply with ACI 301 for placing concrete.

B. Do not add water to concrete during delivery, at Project site, or during placement.

C. Consolidate concrete with mechanical vibrating equipment.

3.5 FINISHING FORMED SURFACES

A. All surfaces shall be broom finished.

3.6 CONCRETE PROTECTING AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with ACI 301 for hot-weather protection during curing.

B. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

C. Curing Methods: Cure formed and unformed concrete for at least seven days by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:

a. Water.
b. Continuous water-fog spray.
c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall

within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.7 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified independent testing agency to sample materials, perform tests, and submit test reports during concrete placement according to requirements specified in this Article. Perform tests according to ACI 301.

1. Testing Frequency: One composite sample shall be obtained for each 100 cu. yd. or fraction thereof of each concrete mix placed each day.

3.8 REPAIRS

A. Remove and replace concrete that does not comply with requirements in this Section.

END OF SECTION 03300